An Automated Evaluation and Critiquing Aid for User Interface Design, Phase II

Completed Technology Project (2006 - 2008)

Project Introduction

We will leverage our prior work on Adaptive Information Management (AIM) to provide a core reasoning capability for use in an interactive and quantitative evaluation aid to assist designers in developing user interfaces (UIs). We have a task-linked information representation and associated algorithms for reasoning about the information needs of a set of user tasks, the information presentation capabilities of a set of devices and formats, and the degree of match between the two. These have served as the basis of multiple, successful AIM systems in the past. In Phase I, we developed an architecture for making our core representation more interactive and subject to user guidance-- turning our AIM into a Multi-modal Advisor for Interface Design (a MAID). We demonstrated the effectiveness of the resulting evaluation algorithm in a set of 10 "walkthrough" experiments illustrating quantitative feedback on the adequacy of interface concepts for the types of procedures and displays under consideration for NASA's Crew Exploration Vehicle (CEV). In Phase 2, we propose to implement a prototype version of this approach in an integrated suite of software tools for procedure authoring and demonstrate it on a set of procedure execution displays for a NASA vehicle or platform (notionally, CEV).

Primary U.S. Work Locations and Key Partners
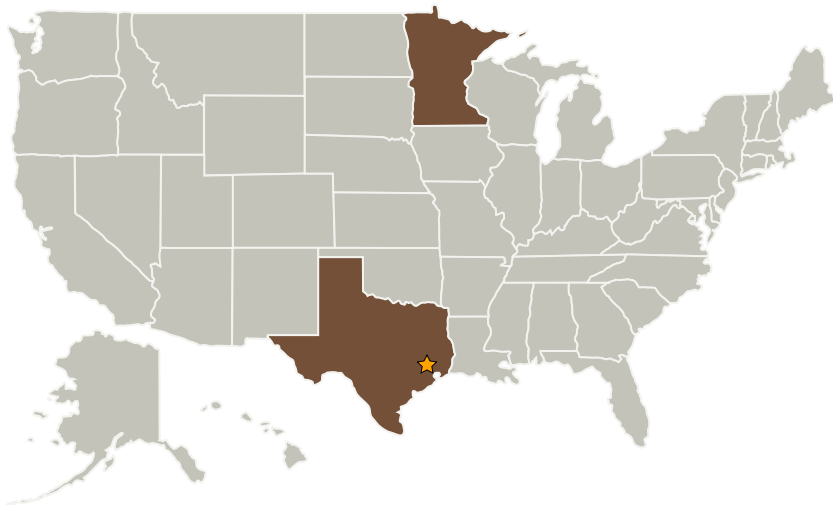
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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Organizations Performing Work	Role	Type	Location
⭐Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
SIFT, LLC	Supporting Organization	Industry	Minneapolis, Minnesota

Primary U.S. Work Locations	
Minnesota	Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  └ TX05.1 Optical Communications
    └ TX05.1.2 Large Apertures